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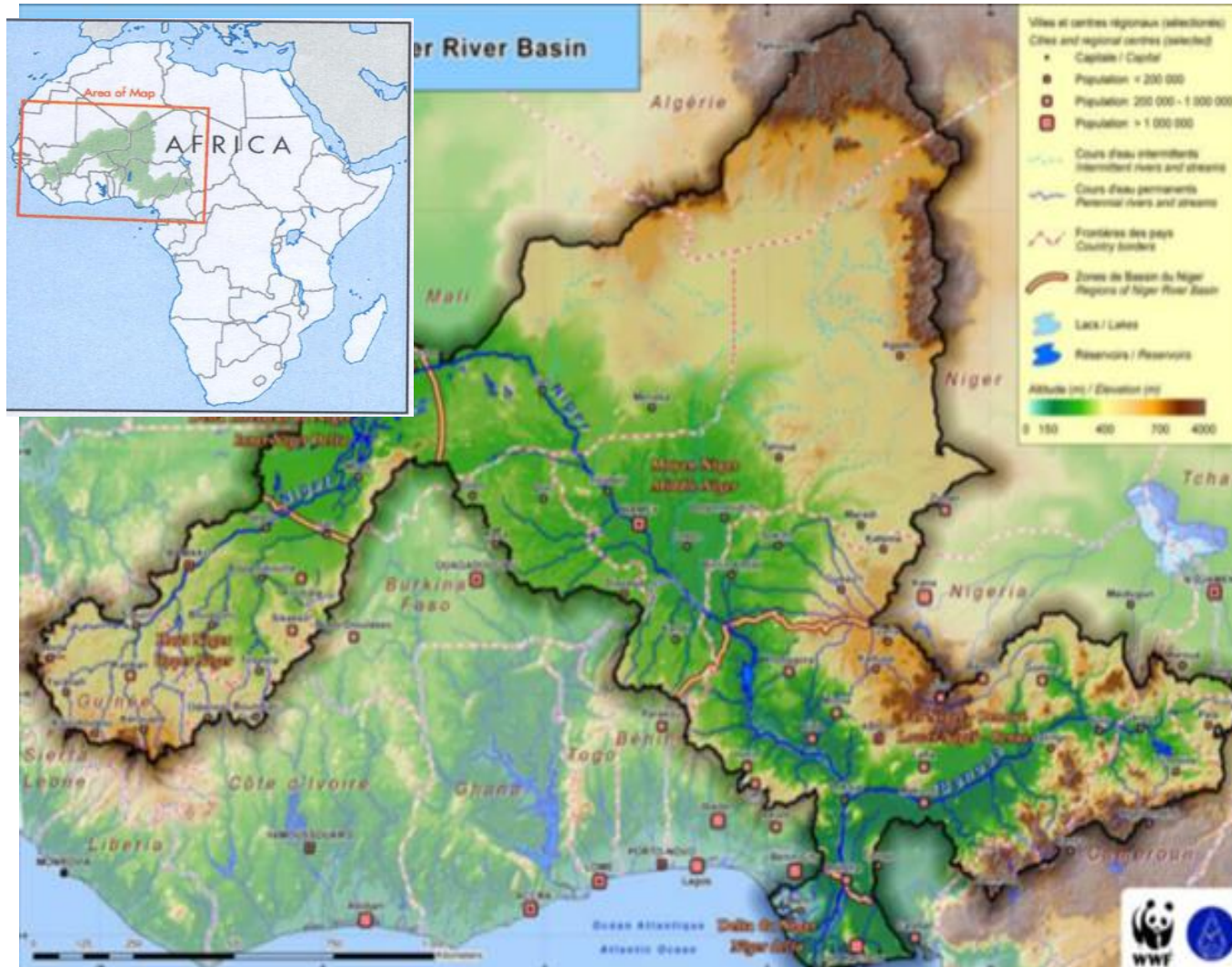
# NIGER BASIN CLIMATE RESILIENCE INITIATIVES

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# BRIEF BACKGROUND OF NBA



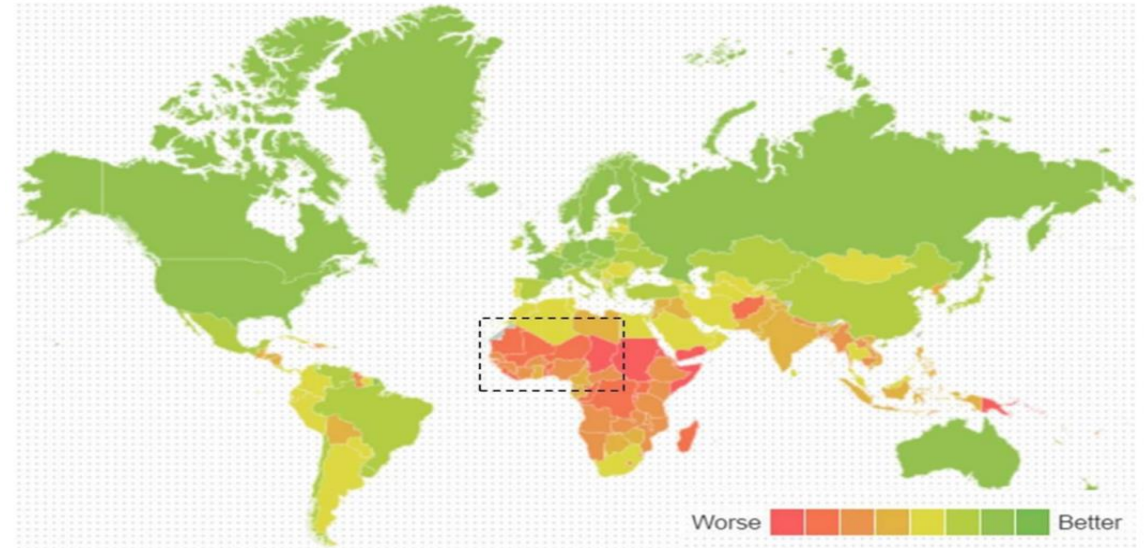
- In the heart of West Africa, covers 9 countries.
  - created in 1980
- Length of 4200 km:
  - 3rd in Africa
  - 9th in the world.
- Area = 2,100,000 km<sup>2</sup> , active part of 1,500,000 km<sup>2</sup>
- Agricultural potential: around 2,500,000 ha of irrigable land, (20% is currently exploited)
- Hydropower potential: the few dams built provide a product of around 7,000 Gwh, i.e. 24% of the estimated total potential production 30,000 Gwh;
- About 3% annual population growth
- Temperature rising from 1°C to 3°C, & high rainfall variability with flooding & drought



# CLIMATE CHANGE IS REAL

- The Basin suffers from a large Adaptation Deficit;
- national & local governments are not equipped / prepared to respond to ongoing climate-related events,
- poor development, poverty, political instability
- Over 70% of the population lives in areas where food security depends on unreliable rainfall , highly variable inter-annual & intra-annual river flows.
- The impacts of climate change increase the risk of natural disasters such as floods & droughts, degraded biodiversity & ecosystems.
- These impacts have a compounding effect that threatens food & energy security, economic development, & the preservation of the ecosystems in the Niger Basin..
- To adapt with climate change, NBA & its members countries, partners developed regional & national policies, called Investment Plan for the strengthening of Resilience of Climate Change in the Niger Basin, 2015
- The NB countries recognize # shared nature of their water resources as an opportunity for a collaboration & coordination that will derive greater resilience-building outcomes.
- Climate Change investment plan, some initiatives, programmes and projects have been identified and implementing at regional, national and sub-national level.

Figure 1-2 : Vulnerability index to climate change (ND-GAIN 2013)



## GLOBAL WARMING THE DEBATE

### SCIENTIFIC EVIDENCE

Are scientists convinced?



Surveys have found that over 97% of actively publishing climate scientists are convinced humans are significantly changing global temperatures (Doran, 2009). Not only is there a vast difference in the number of convinced versus unconvinced scientists, there is also a considerable gap in expertise between the two groups (Anderegg 2010).

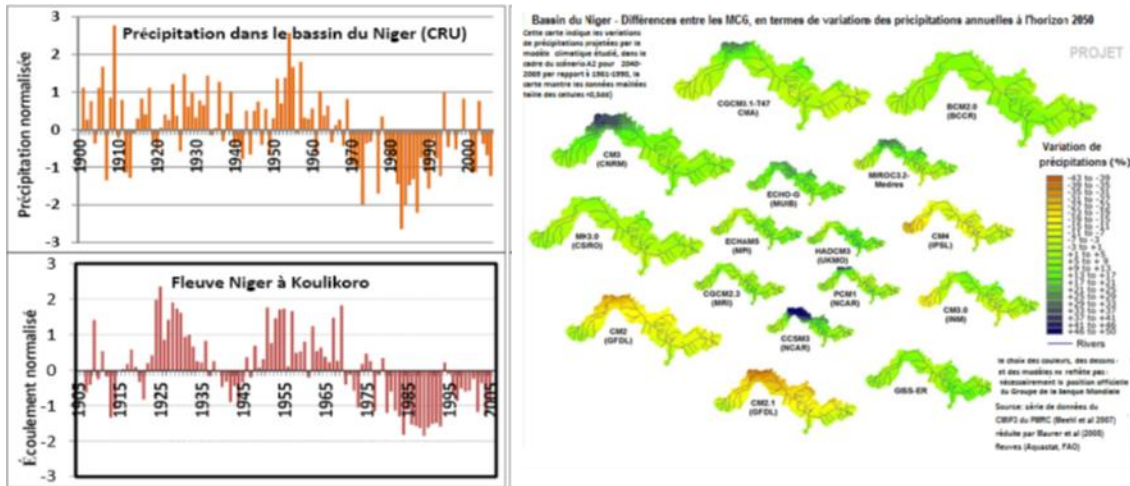


There's a consensus of scientists because there's a consensus of evidence



# CLIMATE CHANGE AND IMPACTS ON HYDROLOGICAL EVOLUTION IN THE NIGER BASIN.

The phenomenon of the siltation of the River Niger and its tributaries is a major concern.



But 3 trends: Rise in T: 1- 3°C; Increased variability of P and extreme phenomena (floods, droughts); Sea level rise at the maritime delta.

Pronounced uncertainty about climate projections for 2050.

The trend of reduction in the flow of the river and its tributaries.



**Severe floods and droughts are increasingly recurrent.**

**Severe Impacts on the Socio-economic of the Basin**

*Slower economic growth and poverty  
Food insecurity.*

*Low power generation*

*Increased need for drinking water*

*Water pollution*

*Environmental degradation*

*Increased surface water evaporation*





# ACTIONS TAKEN (ON-GOING) TO MITIGATE THE IMPACTS OF CC FROM THE INVESTMENT PLAN FOR STRENGTHENING OF RESILIENCE TO CLIMATE CHANGE IN THE BASIN

1. Knowledge: Collection and generation of climatic and hydrological information. Weather-forecasting tools and decision-making tools
2. Assessment of vulnerability, Communication and awareness-raising
3. Integration of climate change adaptation into the capabilities, bodies and management instruments of the national and regional institutions of the Basin
4. Measures targeting vulnerability to water stress
5. Measures targeting vulnerability to flooding
6. Measures targeting vulnerability to soil degradation
7. Measures targeting vulnerability to degradation of the grazing land
8. Measures targeting vulnerability to degradation of the ecosystems
9. Measures targeting vulnerability to deterioration of the water quality and health
10. Measures targeting vulnerability linked to the rising sea-level
11. Measures strengthening resilience (e.g. generation of jobs, revenues, etc)

Figure 3-1: Distribution of the CRIP actions contribution to socio-economic infrastructure development in the Niger basin

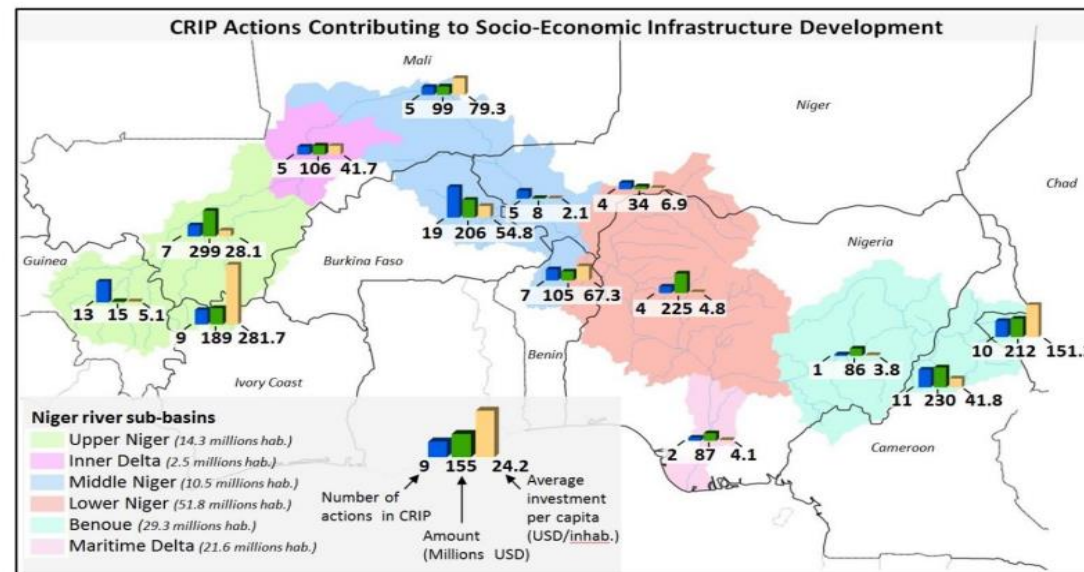
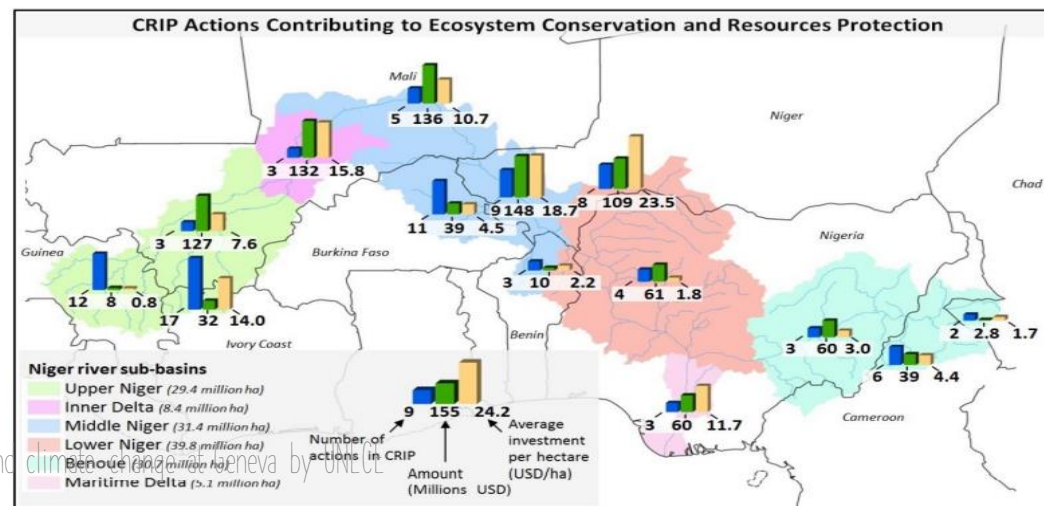


Figure 3-2: Distribution of the CRIP actions contributing to ecosystem conservation and resources protection in the Niger basin





# SOME PROGRAMS IMPLEMENTED IN THE BASIN TO ADDRESS THE IMPACTS OF CLIMATE CHANGE ON WATER, AGRICULTURE AND ENVIRONMENT

PROGRAMME	OBJECTIVES	BUDGET	MAIN ACTIVITIES				
<p>Improving IWRM, knowledge-based management and governance of the Niger Basin and the Iullemeden-Taoudeni/Tanezrouft Aquifer System (NBA/UNDP)</p> <p>2018 – 2023</p> <p>*Algeria &amp; Mauritania included</p>	<p>To improve knowledge-based management, governance and resource conservation of the Niger River Basin and the Iullemeden-Taoudéni/Tanezrouft Aquifers (ITTAS), to support IWRM for the benefit of communities and the resilience of ecosystems</p>	<p>\$915,897,123</p>	<ul style="list-style-type: none"> <li>*Transboundary Diagnosis Analysis completed with Specific Action Plans</li> <li>*Community Based intervention for the restoration of natural eco systems through pilot projects in selected areas in the 11 participated countries</li> <li>*Application of TEST technology to reduce industrial pollution in some areas within the Basin</li> <li>*Cross cutting support system to ecosystem-based management</li> </ul>	<p><b>Support to the Niger Basin Authority for groundwater management (AGES) NBA/BGR</b></p>	<p>The projects intend to strengthen the NBA so that it can coordinate the exchange of groundwater data between member states, their integration into a management system and develop sustainable strategies for water resources</p>	<p>*Phase 1: €2.5M (2010 – 2013)</p> <p>*Phase 2: €2.5M (2014 – 2018)</p> <p>*Phase 3: €2.2M (2019 – 2022)</p>	<ul style="list-style-type: none"> <li>*The inventory of groundwater &amp; other information</li> <li>*Cross-border study of pilot areas</li> <li>*Capacity-building at all levels – parallel</li> <li>*Production of thematic maps</li> <li>*Establishment of data base system for groundwater resources at ABN</li> </ul>
<p><b>WEF-NEXUS: The Nexus Regional Dialogue in the Niger Basin. NBA/GIZ/EU/BMZ</b></p>	<p>To institutionalize the Nexus approach in national and regional governance structures and investment decisions for Water, Food, Energy security.</p>	<p>Phase: 2017 – 2018 (ended)</p> <p>Phase II: 2020 – 2023 (Ongoing currently)</p> <p>BMZ and EU co-financing 800,000 Euros</p>	<ul style="list-style-type: none"> <li>*Five regional and national consultation workshops on Nexus implementation.</li> <li>* Nexus application strategies developed for major multi-purpose dams: Fomi and Kandadji.</li> <li>* Nexus mainstreaming into operational and investment planning of the Niger basin – 350 projects.</li> <li>*Preparation of large and medium-scale Nexus investment projects</li> <li>*Adding Peace &amp; Security dimension to Nexus: new financing approved for peace building in the basin through Nexus-based natural resource management.</li> </ul>	<p><b>Integrated programme for development and adaptation to climate change in the Niger basin (PIDACC/BN)</b></p>	<p>Contribute to improving the resilience of the Niger River ecosystems and populations through sustainable management of natural resources</p>	<p>273,792 Millions USD</p> <p>2019 -2025</p> <p>AfDB, WB, EU</p>	<ul style="list-style-type: none"> <li>*1000 new jobs shall be created through Agricultural activities</li> <li>*Development of the resilience of ecosystems and natural resources</li> <li>*Development of the resilience of populations</li> <li>*Capacity development for the populations</li> </ul>



# SOME RESULTS FROM THE CLIMATE CHANGE MITIGATION IN THE BASIN

Fixing the dunes both (mechanically and biologically) reduces Siltation of the river, improves water quality, control water shortages and drought in the affected areas, helps agriculture, improves navigability and reduces flooding etc

Recovery of degraded land



Fixing the dunes



vegetable gardens



*A small dam in Fètèkou in Benin rehabilitated*



# LESSONS LEARNT (ON-GOING) ON ADAPTING TO THE EFFECTS OF CLIMATE CHANGE

## • Water Quality and Water Quantity

1. Hydrometric stations are necessary
2. Transboundary monitoring networks should be inclusive and safeguarded
3. Anticipated National budget is important for sustainability
4. Forecast / prediction and Early warning system is essential and should be strengthened at all levels
5. Realtime data collection and transmission is essential
6. Capacity building should be planned, sustained at all levels
7. Minimal Environmental flow should be established and maintained
8. There is relationship between climate change and water resources (quantity & quality, Food and Energy and Ecosystems)
9. More cooperation and collaboration is needed between local communities/national / regional / intl. organizations
10. Participation of International organization is important for the remedial impacts of climate change

## • Agriculture and Climate Change

1. National and sub-national dialogue forum/ meeting is necessary
2. Knowledge of water, food, energy and ecosystems is critical
3. Moving from more water more food to less water more food (Agro-tech)
4. Grow what you consumed / consume what you grow is critical
5. Knowledge in water footprint and virtual water is necessary for Agro-efficiency and food security
6. Understand type of Conflicts induced by Climate change
7. Knowledge in water efficiency and water demands is important for crop yields
8. Locals participation is necessary for climate change adaptation techniques
9. Women and youths organization contributed to climate change adaptation techniques
10. Climate -smart agriculture is a key (increases productivity, farmers profit, +ve impacts on the environment, research & breakthroughs in the tech/ universities )





## SOME OF THE BEST PRACTICES EMPLOYED TO MITIGATE THE IMPACTS OF CC IN THE BASIN

1. The development of (3.11 billion USD) Investment Plan for the Strengthening of Resilience to Climate Change in the Niger Basin (2016-2024)
2. The formulation of National Adaptation Programmes of Action (NAPA) & National Adaptation Plans (NAP)
3. The implementation of agricultural, agroforestry / forest restoration and management measures
  - enhance the resilience of the populations to climate change, (PIDAACC, P-DREDGE, P-GIRE2, ITTAS)
  - constitute mitigation measures by carbon sequestration in the plant biomass
4. The construction (on-going) of 3 multi-purpose dams (Kandadji- Niamey, Fomi – Guinea, Toussa – Mali) are deemed to be an adaptation measure as the dam contributes to improving the availability of the water resource during low-water periods,
  - the protection against flooding and the improvement of the means of subsistence of the local populations (fishing, tourism).
  - the hydroelectric component of the dam also constitutes a mitigation measure, contributing to energy generation without the emission of greenhouse gas (GHG).
5. The introduction of Water, Energy, Food NEXUS approach in the Basin, path to a climate-resilient & resource-saving future for all.
6. Satellite based water monitoring and flow forecasting system: ([www.sath.abn.ne](http://www.sath.abn.ne))
  - increase the frequency and accuracy of water resources data,
  - very cost-effective solution to resolving real times data series scarcity issues
  - enhances the capability of the NBA member states in their water resources & environmental management functions.
7. Application of Environmentally Sound Technology methodology (TEST) for the control of water pollution in the Basin.



# Thank you!



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